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(54) Personal cleansing bar

(57) A personal cleansing bar comprising the following:-

- (i) from 30% to 90% by weight of soap;
- (ii) from 1% to 35% by weight of secondary surfactant;  
and a combination of at least two of the following:-
- (iii) from 1% to 25% by weight of fatty acid;
- (iv) from 1% to 25% by weight of fatty alcohol; and
- (v) from 1% to 25% by weight of hydrocarbon material with a melting point greater than 25°C,  
wherein the total weight of components (iii), (iv) and (v) above is in the range from 10 to 40% by weight  
of the bar and wherein the bar contains no acyl isethionate material or sodium ethoxylated alcohol glycerol  
sulphate.

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PERSONAL CLEANSING BAR

The present invention relates to a personal cleansing bar.

Solid soap and syndet bars have been used as cleansing products for many years. Soap-containing bars generally do not exhibit particularly good skin feel or mildness, nor do they have a particularly high level of moisturisers. Syndet bars can be expensive to produce. The present invention seeks to provide a soap-containing bar having improved skin feel and mildness which also contains a higher level of moisturisers than conventional soap containing bars.

According to the present invention there is provided a personal cleansing bar comprising the following:-

(i) from 30% to 90% by weight of soap;

(ii) from 1% to 35% by weight of secondary surfactant;

and a combination of at least two of the following:-

(iii) from 1% to 25% by weight of fatty acid;

(iv) from 1% to 25% by weight of fatty alcohol; and

(v) from 1% to 25% by weight of hydrocarbon material with a melting point greater than 25°C,

wherein the total weight of components (iii), (iv) and (v) above is in the range from 10 to 40% by weight of the bar and wherein the bar contains no acyl isethionate material or sodium ethoxylated alcohol glycerol sulphate.

The bar may also contain other optional ingredients, which will be described hereinafter.

The formulation of the cleansing bars described above provides enhanced skin feel without compromising other physical properties such as hardness, mush and lather volume. In fact the bars in accordance with this invention have been shown to improve on the lather volume scores of standard soap. Furthermore formulations in accordance with the present invention have shown an improved mildness and have exhibited less drying effect on the skin than standard soap. Thus the bars of the invention show enhanced skin feel properties when compared to conventional soap bars.

This invention employs these high levels of emollient for the purpose of reducing irritancy to the skin (both during washing and after washing), improving the skin feel and improving the moisturising property of the bar. Traditional combinations of soap with surfactants have given bars which can be claimed to be milder or to have enhanced skin feel characteristics. However, the bars are not perceived as such. This invention provides a noticeable and immediate skin feel benefit over standard soaps or combination of soaps with

surfactants. This invention requires a combination of two emollients described above to generate the enhanced skin feel. Individually these emollients are effective at moisturising the skin. Combinations, however, synergistically complement each other yielding the skin feel whilst ensuring all other bar properties are not compromised. This is not possible using high levels of single emollient in this type of cost effective system.

This skin feel benefit has been achieved to an extent in cleansing bars using prior art syndet technology. This technology is expensive; the technology of the invention affords a much cheaper alternative to syndet technology while delivering many of its benefits.

The in-use properties of this invention may be improved by the inclusion of other materials such as a polymeric material taken from talc, starch or dextrin materials. These materials can be employed to provide skin feel benefits and to reduce the slippage associated with bars containing emollients.

In a preferred embodiment of the invention the soap component comprises any of the following either alone or in combination:- alkali metal salts, alkaline earth metal salts or alkanolamine salts of  $C_{10}$ - $C_{18}$  fatty acids.

The secondary surfactant may be any of the following

either alone or in combination: anionic, amphoteric or nonionic. The secondary surfactant is used to improve the performance characteristics of the physical properties of the bar. In a preferred embodiment of the invention the surfactant comprises any of the following either alone or in combination:- alkylamidopropylbetaine, alkyl sulfate (or alkyl ether sulphate) and ethoxylated alcohols.

In a preferred embodiment of the invention the fatty acid(s) have a chain length in the range from  $C_8$  to  $C_{22}$  and more preferably have a chain length in the range from  $C_{12}$  to  $C_{20}$ . The fatty acid is employed to provide a deposition of material during washing which delivers an enhanced skin feel both during the wash phase and after the skin has been dried.

Preferably the fatty alcohol(s) have a chain length in the range from  $C_8$  to  $C_{22}$  and more preferably in the range from  $C_{12}$  to  $C_{20}$ . The fatty alcohol is employed to help provide a noticeable skin feel benefit over ordinary soap.

The hydrocarbon material preferably comprises paraffin wax.

In a further example the bar could include from 1% to 25% by weight of at least one ester, for example, alkylesters, triglycerides.

The bar may further comprise any of a number of minor

additional ingredients in accordance with the standard practice in this field. These may include any of the following:-

(i) Colouring agents and/or optical brighteners to improve the physical appearance of the bar;

(ii) perfume to improve the fragrance of the bar;

(iii) starch or a similar agent to reduce the rate of slip of the bar during washing;

(iv) preservative systems;

(v) water;

(vi) filler materials;

(vii) antimicrobial materials;

(viii) secondary emollient materials to improve/modify skin feel even further. These may include, for example, silicone materials, cationic materials (particularly polymers) and various oils (eg mineral oil); and/or

(ix) materials known in the art for improving processing (binders) and the finished properties of the bars (cracking, mashing, hardness).

The bar preferably comprises from 1 to 15% by weight of any of the following polymeric materials: talc, starch and dextrin.

Several processes may be employed to produce this invention. The bar may be prepared by using a modification of the standard production used for soap bars. The ingredients are added to the soap base material. The mixture is then milled and plodded. Alternative production methods are available.

Another process is to add the emollients in a molten state to liquid soap which is then dried to form a base which is then treated in a manner similar to above. Yet another process is to mix the surfactant with the soap and then to add the emollients in a molten state. When cooled this can then be milled and plodded. The billets from these processes may then be stamped.

In order that the present invention may be more readily understood specific embodiments thereof will now be described by way of example only.

Table 1 lists a number of soap bar formulations in accordance with the invention (B,D,G), together with comparative examples (A,C,E,F).



TABLE 1

	A	B	C	D	E	F	G
Soap*	78.8	76.7	0.0	0.0	78.8	78.8	74.1
Soap**	0.0	0.0	78.8	76.6	0.0	0.0	0.0
Fatty Acid	10.0	7.5	10.0	7.5	20.0	0.0	10.0
Fatty Alcohol	10.0	7.5	10.0	7.5	0.0	20.0	10.0
Betaine	0.0	7.5	0.0	7.5	0.0	0.0	0.0
Alkyl Sulfate	0.0	0.0	0.0	0.0	0.0	0.0	5.0

\*Soap containing a ratio of tallow to coconut derived material is approximately 80:20.

\*\*Soap containing a ratio of tallow to coconut derived material is approximately 60:40.

Formulation C and D containing soap with higher ratio of coconut to tallow gives higher lather profiles than soap with the lower ratios (A and B respectively). Consumer panels have perceived a mildness benefit using the higher coconut soap.

Formulations E and F are straight forward combinations of soap with a single emollient. These formulations have low lather profiles compared to formulation C, for example which contains both emollients. No perceivable skin benefit can be detected. In addition the bars are very gritty. Formulation A is a combination of the two emollients to give a much improved bar. This formulation has no grit and is quite hard. The combination of emollients is essential to producing an acceptable bar. The lather profiles are similar to standard

soap. This is an important feature of this invention, the combination of mollients is essential to producing an acceptable bar. The bars of this invention have noticeably enhanced skin feel. Introduction of a secondary surfactant (example B and D) improves this lather profile without affecting the skin benefits or other physical properties of the bar, such as rate of wear.

Similarly formulation C contains soap with a higher ratio of coconut to tallow derived material combined with two emollients gives a much improved bar over blends containing only one emollient. The lather volume is much higher and the grit score much lower. Again the combination of the emollients gives a smooth bar with a pleasant skin feel. Incorporating the secondary surfactant, betaine, into the formulation D has the effect of increasing the lather volume.

Other secondary surfactants may be employed. Formulation G shows the use of an alkyl sulfate in this role. This improves the hardness and lather volume of this blend when compared to formulation A.

Table 2 below gives the results of various performance tests which were carried out in relation to compounds A-G and a standard soap bar. All of the results in Table 2 are indexed to Formulation B apart from grit which is a 0-5 scale.

TABLE 2

Test	A	B	C	D	E	F	G	Std Soap
Mush	143	100	65	99	-	-	114	81
Rate of Wear	109	100	133	144	-	-	132	104
Grit	0	0	1	2	5	5	4	0
Hardness	74	100	127	104	-	-	99	75
Lather Volume	58	100	89	115	52	57	68	55

Mush                    The lower the score the less mushy the bar is.

Rate of Wear        The higher the score the faster the bar wears away.

Grit                    (Scale 0-5). A score of 0-1 or 2 is acceptable. A score of 5 is very gritty.

Hardness            The higher the score the softer is the bar.

Lather volume      The higher the score the more lather is generated.

Details of tests employed herein.

#### Performance testing

Bar soap performance testing methods are widely known in the art e.g. Soaps and Detergents. A theoretical and Practical Review, Luis Spitz. Published 1996, AOCS press.

#### Mildness/in use skin feel testing

Mildness testing was conducted by use of a method known

as corneosurfametry. This is a method well known in the art, e.g., Contact Dermatitis 1995:33:38-41. The formulation was tested versus standard soap and a bar with a combination of soap and surfactant. The results show that this formulation was shown to be milder than both these formulations. Indexed results are given in table 3 below.

TABLE 3

	Formulation B	Soap	Soap/Surfactant Combination
CSMI Score (Indexed)/ Mildness	100	302	373

The higher the score the more the skin is damaged. The results are statistically significant.

A further test was conducted using the corneosurfametry test with panellists answering questionnaires about the condition of their skin. The formulation (B) damaged the skin less than a standard soap and the formulation (B) dried the skin less than standard soap.

TABLE 4

	Day 10-CSMI Score (Indexed)/Skin Damage	Day 20-CSMI Score (Indexed)/Skin Drying
Soap	227	337
Formulation B	100	100

The above results are statistically significant.

It can be seen from the above that formulation B showed an improved mildness and the bar had a less drying effect on the skin than standard soap, illustrating the use of the combination of emollients to give enhanced mildness and skin feel properties compared to standard soap. (See tables 3 and 4 above).

It is to be understood that the above described embodiments are by way of illustration only. Many modifications and variations are possible.

CLAIMS

1. A personal cleansing bar comprising the following:-

(i) from 30% to 90% by weight of soap;

(ii) from 1% to 35% by weight of secondary surfactant;

and a combination of at least two of the following:-

(iii) from 1% to 25% by weight of fatty acid;

(iv) from 1% to 25% by weight of fatty alcohol; and

(v) from 1% to 25% by weight of hydrocarbon material with a melting point greater than 25°C,

wherein the total weight of components (iii), (iv) and (v) above is in the range from 10 to 40% by weight of the bar and wherein the bar contains no acyl isethionate material or sodium ethoxylated alcohol glycerol sulphate.

2. A personal cleansing bar as claimed in claim 1, wherein the soap component comprises any of the following either alone or in combination:- alkali metal salts, alkaline earth metal salts or alkanolamine salts of  $C_{12}$ - $C_{22}$  fatty acids.

3. A personal cleansing bar as claimed in claim 1 or claim

2, wherein the secondary surfactant comprises any of the following either alone or in combination: anionic, amphoteric or nonionic surfactants.

4. A personal cleansing bar as claimed in any preceding claim, wherein the secondary surfactant comprises any of the following either alone or in combination:- alkylamidopropylbetaine, alkyl sulfate (or alkyl ether sulphate) and ethoxylated alcohols.

5. A personal cleansing bar as claimed in any preceding claim, wherein the fatty acid(s) have a chain length in the range from  $C_8$  to  $C_{22}$ .

6. A personal cleansing bar as claimed in any preceding claim, wherein the fatty acid(s) have a chain length in the range from  $C_{12}$  to  $C_{20}$ .

7. A personal cleansing bar as claimed in any preceding claim, wherein the fatty alcohol(s) have a chain length in the range from  $C_8$  to  $C_{22}$ .

8. A personal cleansing bar as claimed in any preceding claim, wherein the fatty alcohol(s) have a chain length in the range from  $C_{12}$  to  $C_{20}$ .

9. A personal cleansing bar as claimed in any preceding claim, wherein the hydrocarbon material comprises paraffin

wax.

10. A personal cleansing bar as claimed in any preceding claim, wherein the bar further comprises from 1 to 15% by weight of any of the following polymeric materials: talc, starch and dextrin.





Application No: GB 9716528.6  
Claims searched: 1-10

Examiner: Dr J. P. Bellia  
Date of search: 13 January 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): C5D (DDA, DJC, DJX)

Int Cl (Ed.6): C11D 10/04, 17/00

Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2309385 A (CUSSONS) See Example 3F	1-10
A	WO 93/02174 A1 (PROCTER & GAMBLE) See Examples 5-8	1-10

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.